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Patent Abstracts of Japa

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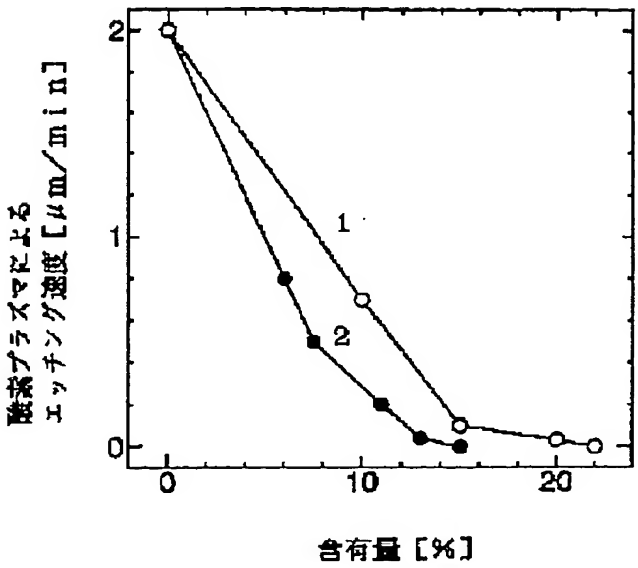
TITLE : FLUORINATED AMORPHOUS CARBON FILM MATERIAL AND MANUFACTURE THEREOF AND SEMICONDUCTOR DEVICE



ABSTRACT : PURPOSE: To enhance heat resistance and etching properties by adding nitrogen or silicon atoms in a fluorine contained amorphous carbon film used in a multilayer wiring interlaminar insulation film.

CONSTITUTION: When plasma is generated by using a fluorinated carbon gas and a fluorinated amorphous carbon film is formed, a silicon gas is arranged to flow simultaneously, thereby adding carbon atoms or silicon atoms in a prior art fluorinating amorphous carbon film and forming powerful binding in the film, such as carbon-nitrogen binding or carbon-silicon binding so as to enhance the degree of bridge of the film and increase heat resistance. At the same time, the etching resistance of the film by O_2 plasma is enhanced by the application that these bindings are stronger than the nitrogen-carbon binding. Furthermore, when the fluorinating carbon groups are being etched, silicon is adapted to be contained in the film, thereby heightening the etching rate compared with a resist material so that only a silicon-contained amorphous carbon film may be selectively etched. It is, therefore, possible to use a conuentional art resist for patterns shapes.